

WHAT IS CLAIMED IS:

- 1 1. A pump comprising:
2 a housing;
3 a pump inlet;
4 a pump outlet;
5 a drive shaft provided within the housing; and
6 multiple stages provided within the housing, each stage
7 further comprising:
8 a body further comprising:
9 a fluid inlet;
10 a fluid outlet; and
11 an interior volume between the fluid inlet and
12 the fluid outlet;
13 an impeller provided in the interior volume and coupled
14 to the drive shaft;
15 a vent allowing fluid communication between the
16 interior volume and a volume outside of the body.
- 1 2. The pump of Claim 1, wherein the body further comprises:
2 a central wall dividing the interior volume into a first volume
3 and a second volume, wherein the central wall further comprises:
4 a central aperture provided in the wall; and
5 at least one aperture spaced radially outward from the
6 central aperture.
- 1 3. The pump of Claim 2, wherein the central wall further
2 comprises vanes adapted to direct fluid from the at least one aperture
3 radially inward toward the central aperture.

1 4. The pump of Claim 3, wherein the body includes
2 at least five vanes; and
3 at least five apertures spaced radially outward from the
4 central aperture.

1 5. The pump of Claim 3, wherein the body further comprises:
2 a first wall provided on a first side of the central wall;
3 a second wall opposite the first wall, and provided on a
4 second side of the central wall;
5 wherein the drive shaft extends through the first wall and the
6 second wall.

1 6. The pump of Claim 5, wherein the fluid inlet is provided in
2 the first wall, and the fluid outlet is provided in the second wall.

1 7. The pump of Claim 6, wherein the drive shaft extends
2 through the fluid inlet and the fluid outlet.

1 8. The pump of Claim 2, wherein the drive shaft extends
2 through the central aperture.

1 9. The pump of Claim 9, wherein the central aperture is
2 substantially sealed against fluid flow, but allows rotation of the drive
3 shaft relative to the body.

1 10. A pump comprising:
2 a pump casing;
3 a shaft provided within the pump casing;
4 a plurality of fluid handling units wherein at least one fluid
5 handling unit comprises:
6 a housing;
7 a wall provided within the housing, the wall having a
8 first surface and a second surface, the wall separating the housing into a
9 first volume associated with the first surface and a second volume
10 associated with the second surface, the wall configured to allow the
11 passage of a fluid from the first volume to the second volume;
12 a vent provided in the housing, the vent being in fluid
13 communication with the first volume or second volume, and a volume
14 external of the housing;
15 an impeller disposed in the first volume, the impeller
16 being coupled to the shaft.

1 11. The pump of Claim 10, wherein the vent is a notch.

1 12. The pump of Claim 10, further comprising a plurality of
2 vanes provided in the second volume, the vanes being adapted to direct
3 the flow of fluid between the first and second volumes.

1 13. The pump of Claim 12, wherein the plurality of vanes are
2 provided on the second surface.

1 14. The pump of Claim 10, wherein the at least one fluid
2 handling unit is a lower pressure fluid handling unit.

1 15. The pump of Claim 10, wherein the lower pressure fluid
2 handling unit is a first stage in the pump.

1 16. A method of repairing a pump, the pump having a relatively
2 low pressure fluid handling module, and a relatively high pressure fluid
3 handling module, the low pressure module and the high pressure module
4 each having an outer casing, the method comprising:
5 venting the outer casing of the low pressure fluid handling
6 module.

1 17. The method of Claim 16, wherein venting the outer casing
2 further comprises providing a notch in the outer casing.

1 18. The method of Claim 17, wherein providing the notch further
2 comprises drilling a hole in the outer casing.

1 19. The method of Claim 16, wherein venting the outer casing
2 further comprises replacing the low pressure fluid handling module with a
3 fluid handling module having a vent.

1 20. A module for use in a fluid handling system, the module
2 comprising:
3 a housing;
4 a wall provided within the housing having a first surface and
5 a second surface, the wall separating the housing into a first volume
6 associated with the first surface and a second volume associated with the
7 second surface, the wall configured to allow the passage of a fluid from
8 the first volume to the second volume; and
9 a vent provided in the housing, the vent in communication
10 with either the first volume or second volume, and a volume external of
11 the housing.

1 21. The module of Claim 20, wherein the vent is a notch.

1 22. The module of Claim 20, further comprising a plurality of
2 vanes provided in the second volume, the vanes being adapted to direct
3 the flow of fluid between the first volume and second volume.

1 23. The module of Claim 22, wherein the plurality of vanes are
2 provided on the second surface.

1 24. The module of Claim 20, wherein the first volume is
2 configured to receive an impeller.

1 25. The module of Claim 20, further comprising a first plate
2 coupled to a first end of the housing, the first plate associated with the
3 first volume.

1 26. The module of Claim 25, further comprising a second plate
2 coupled to a second end of the housing, the second plate associated with
3 the second volume.

- 1 27. The module of Claim 20, further comprising a second plate
- 2 coupled to a second end of the housing, the second plate associated with
- 3 the second volume.

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